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BUB/CTE/2015-16/ **Date: 22-07-2015**

TEST REPORT ON BITUMINOUS MIXES
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: Testing of Bitumen Premix Sample (Semi Dense Bituminous Concrete-SDBC).
{Project*: Improvements to Roads and Drains from Hegadenagara Main Road to Thirumenahalli Village cross in Ward No.05, Byatarayanapura Sub-Division}

Ref. : Letter No. Testing/BUB/2015-16, dated 27-06-2015
Sample supplied to lab by: Sri.K.R.Santhosh, Contractor, collected on
Bangalore.
Report Required for : Assistant Executive Engineer,
Byatarayanapura Sub-Division,
BBMP, Bangalore

TEST RESULTS:

3. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **5.09%**
4. **Gradation Test** :

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-15 of MORTH Specifications-2001 (Grading – 2)
13.2	**100**	100
9.5	**96.30**	90—100
4.75	**43.20**	35—51
2.36	**34.20**	24—39
1.18	**20.30**	15—30
0.3	**14.50**	09—19
0.075	**4.40**	03—08

* As furnished by Client. brought
The Results relate only to the items tested.

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BUB/CTE/2015-16/ **Date: 03-07-2015**

TEST REPORT ON WET MIX MACADAM MIX
(GRADATION TEST)

Sub: To conduct Gradation test on Wet Mix Macadam (WMM) Mix.
{Project*: Improvements to Roads and Drains from Hegadenagara Main Road to Thirumenahalli Village cross in Ward No.05, Byatarayanapura Sub-Division}

Ref. : Letter No. Testing/BUB/2015-16, dated 27-06-2015

Sample supplied to lab by: Sri.K.R.Santhosh, Contractor, Bangalore.

Report Required for : Assistant Executive Engineer, Byatarayanapura Sub-Division, BBMP, Bangalore

TEST RESULTS

1. Gradation Test:

TABLE 1.1

Sieve Size mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Specified Limits as per MoRTH Specifications, IV Revision-2001
53.00	**100.00**	100
45.00	**96.70**	95-100
26.50	**---**	-
22.40	**70.10**	60-80
11.20	**46.30**	40-60
4.75	**34.00**	25-40
2.36	**22.10**	15-30
0.600	**16.00**	8-22
0.075	**4.90**	0-8

*As Furnished by Client

The Results relate only to the items tested

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BUB/CTE/2015-16/ **Date: 01-07-2015**

TEST REPORT ON WET MIX MACADAM MIX

(GRADATION TEST)

Sub: To conduct Gradation test on Wet Mix Macadam (WMM) Mix.
{Project*: Improvements to Roads and Drains from Hegadenagara Main Road to Thirumenahalli Village cross in Ward No.05, Byatarayanapura Sub-Division}

Ref. : Letter No. Testing/BUB/2015-16, dated 27-06-2015

Sample supplied to lab by: Sri.K.R.Santhosh, Contractor, Bangalore.

Report Required for : Assistant Executive Engineer, Byatarayanapura Sub-Division, BBMP, Bangalore

TEST RESULTS

1. Gradation Test:

TABLE 1.1

Sieve Size mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Specified Limits as per MoRTH Specifications, IV Revision-2001
53.00	**100.00**	100
45.00	**97.00**	95-100
26.50	**---**	-
22.40	**74.10**	60-80
11.20	**44.20**	40-60
4.75	**33.00**	25-40
2.36	**25.40**	15-30
0.600	**18.00**	8-22
0.075	**5.20**	0-8

*As Furnished by Client

The Results relate only to the items tested

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BUB/CTE/2015-16/

DATE: 21-07-2015

1. TEST REPORT ON CEMENT CONCRETE CUBES:

Sub: Testing of Concrete Cubes (07 days Compressive Strength)
{Project*: Improvements to Roads and Drains from Hegadenagara Main Road to Thirumenahalli Village cross in Ward No.05, Byatarayanapura Sub-Division}

Ref. : Letter No. Testing/BUB/2015-16, dated 20-06-2015

Sample supplied to lab by: Sri.K.R.Santhosh, Contractor, Bangalore.

Report Required for : Assistant Executive Engineer, Byatarayanapura Sub-Division, BBMP, Bangalore

RESULTS OF COMPRESSIVE STRENGTH ON CEMENT CONCRETE

CUBE SPECIMENS

Dimensions of Specimen : 150 X 150 X 150mm

Grade of Concrete* : M_{20}

TABLE 1.1 :

Sl No	Location/ Identification *	Date of Casting*	Date of Testing	Age in Days	C/S Area in Mm^2	Maximum Load in K.N	Compressive Strength (N/mm^2)	Avg. Value
1	001	13-07-15	20-07-15	07	22500	410	18.22	**18.22**
	002	"	"	"	"	405	18.00	
	003	"	"	"	"	415	18.44	

*As Furnished by Client.
The Results relate only to the items tested.

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BUB/CTE/2015-16 **Date: 02-07-2015**

1. TEST REPORT ON REINFORCEMENT STEEL :

Sub: Testing of Reinforcement Steel of diameter 12mm.
{Project*: Improvements to Roads and Drains from Hegadenagara Main Road to Thirumenahalli Village cross in Ward No.05, Byatarayanapura Sub-Division}

Ref. : Letter No. Testing/BUB/2015-16, dated 27-06-2015

Sample supplied to lab by: Sri.K.R.Santhosh, Contractor, Bangalore.

Report Required for : Assistant Executive Engineer, Byatarayanapura Sub-Division, BBMP, Bangalore

TABLE – 1

SL No	Details	For 12mm	
		Test Results	Min Req as per IS 1786-2008
01	Observed diameter of bar	**12.0mm**	12.0mm
02	Observed Wt/m Length **Kg/m**	**0.891**	0.834
03	Proof stress/Yield stress, fy , **N/mm^2**	**556.0**	500.0
04	Bend/ Re bend Test	**Ok**	---
05	Percentage of Elongation, %	**21.30**	12.00
06	Ultimate Tensile Strength **N/mm^2**	**622.0**	545.0

*As furnished by Client.
The Results relate only to the items tested.

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BUB/CTE/2015-16/

1. TEST REPORT ON CEMENT:

Date: 06-07-2015

Sub: Testing of 53 Grade Cement Sample (IS 12269-1987).
{Project*: Improvements to Roads and Drains from Hegadenagara Main Road to Thirumenahalli Village cross in Ward No.05, Byatarayanapura Sub-Division}

Ref. : Letter No. Testing/BUB/2015-16, dated 27-06-2015

Sample supplied to lab by: Sri.K.R.Santhosh, Contractor, Bangalore.

Report Required for : Assistant Executive Engineer, Byatarayanapura Sub-Division, BBMP, Bangalore

PHYSICAL TESTS ON CEMENT

Brand* : Birla
Grade * : 53
Type * : OPC
Date : 28-06-2015 to 05-07-2015

SL No	Name of Test	Results	Requirements as per
		Cement Sample	IS 12269-1987
1	Initial setting time	**150 min**	Shall not be less than 30 min
2	Final setting time	**265 min**	Shall not be more than 600 min
3	Fineness (by dry sieving on IS 90 micron sieve)	**2.30 %**	Not to exceed 10.0%
4	Soundness test(by Le-Chatelier's method)	**1.40 mm**	Shall not be more than 10 mm
5	Compressive strength e) 3 days (average of three results) f) 7 days (average of three results)	**29.00 N/ Sq mm** **41.70N/Sq mm**	Shall not be less than 27 N/Sqmm Shall not be less than 37N/Sqmm

*As Furnished by Client.
The Results relate only to the items tested.

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BUB/CTE/2015-16/

1. TESTING OF COARSE AGGREGATES (40 mm):

Date: 02-07-2015

Sub: Testing of Coarse Aggregates.
{Project*: Improvements to Roads and Drains from Hegadenagara Main Road to Thirumenahalli Village cross in Ward No.05, Byatarayanapura Sub-Division}
Ref. : Letter No. Testing/BUB/2015-16, dated 27-06-2015
Sample supplied to lab by: Sri.K.R.Santhosh, Contractor, Bangalore.
Report Required for : Assistant Executive Engineer, Byatarayanapura Sub-Division, BBMP, Bangalore

Table - 1.1 : SIEVE ANALYSIS :

IS Sieve Size, mm	Percentage passing	Requirements as per IS 383-1970 (Reaffirmed on 2002) % Passing	
	40 mm Sample	*Single size*	*Graded*
40mm	97.50	85-100	95 – 100
20mm	68.20	0 -20	30- 70
10mm	29.00	0 -5	10- 35
4.75mm	Nil	------	0 - 5

TABLE 1 2 :

SL No	Test conducted	Sample No	Results	Requirements as per IS:383-1970 & Test Conforms to IS 2386(Part I to IV) – 1963 (Reaffirmed on 2002)
1.	Flakiness Index	As above	15.80 %	Not to exceed 25 %
2.	Crushing value	----,,----	25.70%	Not to exceed 45 % for concrete other than for wearing surfaces and 30% for concrete for wearing surfaces

*As Furnished by Client.
The Results relate only to the items tested.

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BUB/CTE/2015-16/

1. TESTING OF FINE AGGREGATES: **Date: 02-07-2015**

Sub: Testing of Fine Aggregates.
{Project*: Improvements to Roads and Drains from Hegadenagara Main Road to Thirumenahalli Village cross in Ward No.05, Byatarayanapura Sub-Division}

Ref. : Letter No. Testing/BUB/2015-16, dated 27-06-2015

Sample supplied to lab by: Sri.K.R.Santhosh, Contractor, Bangalore.

Report Required for : Assistant Executive Engineer, Byatarayanapura Sub-Division, BBMP, Bangalore

TABLE - 1.1 : SIEVE ANALYSIS :

IS Sieve Size, mm	Percentage Passing	Specification as Per IS: 383-1970(Reaffirmed 2002) Percentage Passing			Remarks
		Zone-I	Zone-II	Zone -III	
04.75	96.80	90-100	90-100	90-100	The Sample Conforms to Grading **Zone-II**
02.36	82.10	60-95	75-100	85-100	
01.18	72.00	30-70	55-90	75-100	
600. mic	44.10	15-34	35-59	60-79	
300.mic	16.90	5-20	8-30	12-40	
150.mic	2.90	0-10	0-10	0-10	

TABLE 1.2 ;

Sl No	Test Conducted	Sample	Results	Requirements as Per IS. Specification IS :383-1970 (Reaffirmed 2002)
1	Silt Content	001	1.45 %	Not more than 8%
2.	Specific Gravity	----	2.58	-------

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